"City on the Gulf"

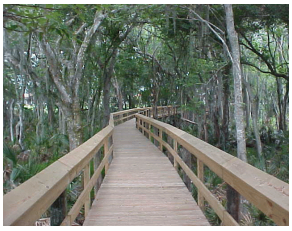
CITY OF VENICE, FLORIDA

WATER SUPPLY PLANNING

MODEL COMMUNITY

DRAFT CONTRACT DELIVERABLES

MAY 2003



Southwest Florida
Water Management District

WATER SUPPLY PLANNING: VENICE, FLORIDA

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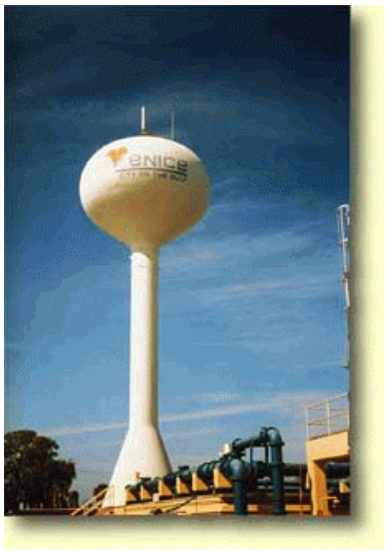
WATER SUPPLY PLANNING: VENICE, FLORIDA

Background



The 2002 Legislature, with the support of Governor Bush, expanded the scope of local government comprehensive plan requirements to strengthen the relationship between water supply planning and land use planning. The City of Venice and four other local governments joined together with the five Water Management Districts, the Department of Community Affairs and the Department of Environmental Protection to act as a pilot community to complete these new requirements.

The fundamental requirement of the new standards provides for the development of a Water Supply Facilities Work Plan that will ensure the construction of water supply facilities that are necessary to serve existing and future development for at least a 10-year planning period. These facilities include all of the infrastructure needed to withdraw water from its source, treat it to meet consumption standards, transmit it throughout a system, store it to meet peak demands and to distribute it to end users.

Overview of City of Venice Services

The City of Venice owns and operates a full range of water supply facilities to meet the needs of a growing urban area. Included are potable water, wastewater treatment and reclaimed water facilities. The City also operates a related water resource program through its stormwater management enterprise program. The City has recently completed expansion of its Eastside Wastewater Treatment Plant as a joint project with Sarasota County to meet local needs for wastewater treatment and to produce additional reclaimed water.

Planning Horizon Summary Findings

As a result of a progressive water planning program and an aggressive capital improvements program, the City of Venice finds itself in the rather unique position of having available facilities, permitted resources and capital funding to meet the existing and projected future demand for both potable water and wastewater treatment service through and beyond the minimum 10-year planning horizon. While a similarly aggressive expansion program to provide reclaimed water to the majority of the community has begun, there is not a current ability to meet all irrigation demands throughout the entire community by the provision of reclaimed water. Efforts to expand storage and distribution, together with continuing education and conservation measures have been identified to be pursued over the coming years to aid in potable water demand reductions.

Summary of Water Supply System and Resources

The City of Venice water supply system is comprised of three critical physical components:

1. Reverse osmosis potable water production system which draws water from the intermediate aquifer (a brackish water source) through a series of wells for distribution throughout the community.

2. A current system of two waste water treatment plants - Eastside and Island Beach plants - that are interconnected through a series of gravity and force mains. The Island Beach Plant is located within the coastal high hazard at the City's airport and is planned for retirement within the next 18 months.

3. A reclaimed water system that derives water from the two wastewater plants for use in meeting irrigation needs of large users (including several golf courses) as well as providing service to individual homeowners.

Current permitted withdrawals from the intermediate aquifer in combination with declining per capita use as the reclaimed system is enhanced and expanded have been determined to be adequate to meet projected potable water demands for the required 10 year planning horizon. The use of well field rotation to mitigate impacts of use of the intermediate aquifer is compatible with the Regional Water Supply Plan of the Southwest Florida Water Management District. The existing reverse osmosis plant is expandable to an ultimate design treatment capacity of 6.225 MGD with the addition of two more process bays and will provide needed potable water for at least a ten year horizon. Annual re-evaluation of water demand projections and system capacities and consumptive use permit requirements will be required to ensure that water supply continues to be available to meet the needs of the community.

City of Venice Background

The City of Venice is located in Southwest Florida on the Gulf of Mexico, midway between Tampa and Ft. Myers.

In 1925, the Brotherhood of Locomotive Engineers engaged famous city planner John Nolen and landscape architect Prentiss French to design a town reminiscent of its Italian namesake. Venice was incorporated as a town at that time.

Building began in earnest in 1926. The first town council was selected and police and fire departments were established. On May 9, 1927, Venice was incorporated as a city.

Venice became known as the City on the Gulf because it is one of the few cities on the west coast of Florida that occupies a coastal area with no barrier island.

What we now refer to as the "Island of Venice" was created in 1967 when the Army Corps of Engineers completed the Intracoastal Waterway through the city.

The City of Venice provides a range of municipal services, including potable water, sewer, reclaimed water, solid waste and recycling collections, road and parks maintenance, stormwater management, building inspections, planning, zoning, code enforcement, and emergency services including fire and police. The City also operates a municipal airport, mobile home park and related enterprise functions.

The City continues to emphasize its unique character and has adopted several regulatory mechanisms to ensure that the community standards and values are sustained in the future as redevelopment and new growth occurs in and around the formal municipal boundaries of the City. In addition to standard zoning provisions, specialized requirements relating to architectural control, historic preservation and protection of significant environmental resources have been adopted and enforced.

Today the City covers an area of just over 12 square miles with a permanent resident population of 18, 628 (based upon the most recent state population estimates). Physical features and infrastructure associated with the City include: over 54 miles of paved streets, 38 miles of storm water management lines, three fire stations, one police station, one County library branch, over 305 acres of public parks, three miles of public beach, and several public boat launches.

The City has adopted a Vision Statement that incorporates building upon the success of the community and its assets:

> " The City of Venice will strive to move into the future by creating an environment which provides the most advantageous opportunities to maintain or improve the quality of life by:

- $ Recognizing and valuing that Venice is a tourist destination.
- $ Recognizing and valuing that Venice is a good place to raise a family.
- $ Continuing a commitment to controlled growth.
- $ Creating a diverse employment base by encouraging light industry.
- $ Guarding the quality of our beaches and parks.
- $ Maintaining a commitment to the Central Business District.
- $ Maintaining a commitment to historical preservation to retain the ambiance of John Nolen's original plan for Venice.
- $ Maintaining a commitment to preserve the unique natural environment for future generations."

The commencement of the City's water supply planning efforts in concert with the Florida Department of Community, Department of Environmental Regulation, and the Southwest Florida Water Management District represents another important element of local efforts to preserve the unique character and appeal of the Venice community.

Statutory Background

With the 2002 Legislature's action to expand the local government comprehensive plan requirements to strengthen coordination of local comprehensive land use planning and water supply planning, a series of new requirements have been established pursuant to Chapter 163, Florida Statutes. These requirements include:

1. Coordination of appropriate aspects of the comprehensive plan with the Regional Water Supply Plan adopted by the respective water management district.

2. Revise the Potable Water Sub-Element to consider the provisions of the Regional Water Supply Plan.

3. Prepare a Water Facilities Work Plan for at least a 10-year planning period addressing water supply facilities necessary to serve existing and new development and include the Work Plan within the Potable Water Sub-Element.

4. Revise the Conservation Element to assess projected water needs and sources for at least a 10-year planning period based upon the provisions of the adopted Regional Water Supply Plan.

5. Revise the Intergovernmental Coordination Element to ensure coordination of the Comprehensive Plan with the approved Regional Water Supply Plan.

6. At the time of the required Evaluation and Appraisal Report, prepare an assessment of the Regional Water Supply Plan.

7. Include any amendments needed to address and incorporate the Water Facilities Work Plan during the adoption of any Evaluation and Appraisal Report-based amendments.

In the event that a Water Management District has not approved a Regional Water Supply Plan, a local government must still prepare each of the identified analyses and necessary amendments based upon the applicable water management district plan. Even those local governments who do not own or directly have responsibility for water supply facilities must coordinate with each water supplier to ensure that they can provide sufficient water to meet projected growth demands and eliminate any deficiencies.

City of Venice Water Supply Sources

The City utilizes a series of ground water wells to meet its potable water needs. There are currently three primary well locations, including several wells along the Intracoastal waterway, at the City's Wellfield Park (Venice Avenue and Pinebrook Road area) and in the Sawgrass Community (Venice Avenue and Auburn Road area). The City has also received dedicated future potential well sites within the Venetian Golf & River Club Community.

The City derives it's water from the intermediate aquifer. The water available from this source is characterized as brackish and requires special treatment through reverse osmosis to create safe drinking water.

The following summarizes the City's water sources with specifications of all wells:

Well No.	Diameter (Inches)	Depth (Total/Cased)	Use	Gallons Per Day (Avg./Peak Monthly)
RO2/33	10	385/230	PS	604,800/604,800
RO3/34	10	450/230	PS	633,600/633,600
RO4/35	10	450/230	PS	648,000/648,000
RO2A/49	10	450/230	PS	604,800/604,800
RO8/50	12	450/230	PS	936,000/936,000
RO7/50	12	350/230	PS	792,000/792,000
RO1E/52	12	405/269	PS	720,000/720,000
RO2E/54	12	261/207	PS	936,000/936,000
RO3E/55	12	360/197	PS	936,000/936,000
RO4E/56	12	320/242	PS	936,000/936,000
RO5E/57	12	320/228	PS	936,000/936,000
RO1A/65	12	359/225	PS	792,000/792,000
RO6E/77	12	320/220	PS	936,000/936,000
RO7E/78	12	320/220	PS	936,000/936,000
RO8E/79	12	320/220	PS	936,000/936,000
IW-1/1	12	500/250	R/A	201,300/321,400
IW-2/2	12	500/250	R/A	201,300/321,400
IW-3/3	12	500/250	R/A	201,300/321,400

Note that the City is the joint permit holder with the Venice Golf Association, Inc. for the three identified irrigation wells. These three wells are located at the City owned airport but serve to meet some of the irrigation needs of the golf course. Venice Golf Association, Inc. operates the golf course as a lessee to the Venice Airport. All remaining wells are operated on a rotational basis to meet potable water demands of the community.

City of Venice Facility Descriptions

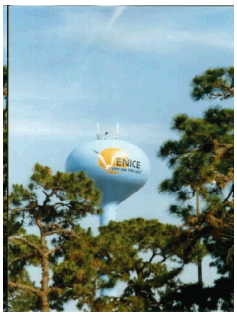
The City of Venice provides a range of municipal services, including potable water, sewer, reclaimed water, solid waste and recycling collections, road and parks maintenance, stormwater management, planning, zoning, code enforcement, and emergency services including fire and police.

The City of Venice Utilities System currently consists of the following key features: a reverse osmosis water treatment plant, an extensive distribution and collection system, and two waste water treatment facilities.

The water treatment plant utilizes reverse osmosis technology and has a capacity to provide four million gallons a day of potable water and on a typical day 2.4 million gallons of water are delivered for customer use. The water distribution system is comprised of approximately 160 miles of potable water mains, 14 miles of raw water mains, over 800 fire hydrants and over 2,400 main line valves.

As a result of the use of reverse osmosis technology the City is able to provide quality drinking water through the following "recipe":

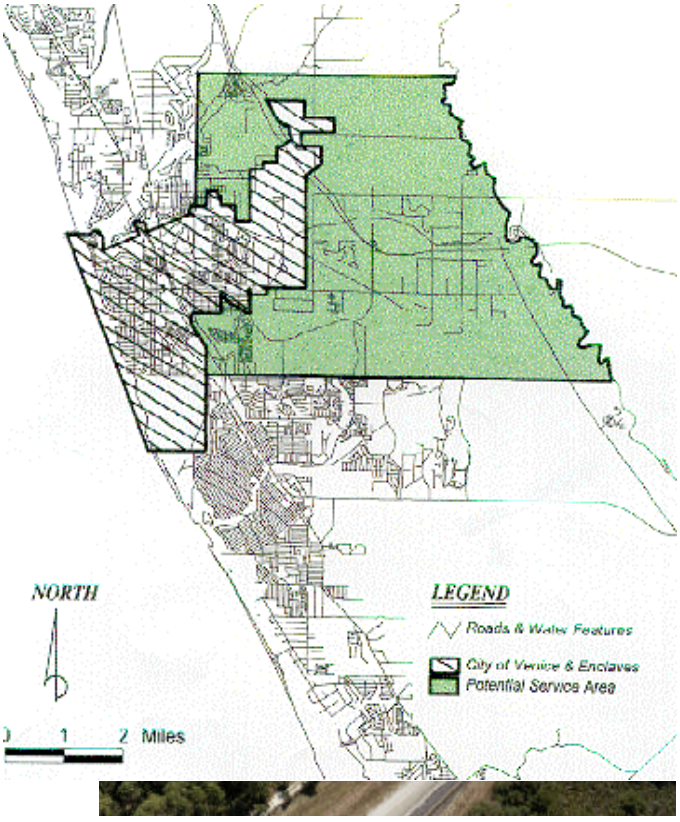
> "**Makes 2 million gallons:** Take 4 million gallons of water drawn from any combination of the 14 wells in the city. Note: These wells are approximately 450 feet deep and extend to the intermediate aquifer. They are located in various locations around the city. Currently there are four in Waterford, one near the fitness trail at Wellfield Park, six along the east side of the Intracoastal Waterway and one at the water production plant. Next, pipe the water to the reverse osmosis plant on East Venice Avenue. Pump the water through a series of 5 micron filters to separate sand and debris, then through reverse osmosis membranes, which remove minerals. This will leave about half the original amount of water. Blend in 6 percent well water to return some mineral content to treated water. Aerate and disinfect with 1.5 parts chlorine per million pounds of water. Add a scale inhibitor to reduce corrosiveness. Place metal coupons at various sites to check for corrosiveness. Check on this process every two hours to be sure it is within specified limits in regard to quality. Take the reject water (which is what is leftover after processing the potable water), aerate and add chlorine to remove hydrogen sulfide. Discharge in accordance with Florida Department of Environmental Regulation permit conditions."



The City is in the process of consolidating waste water treatment at its Eastside Waste Water Plant as part of an on-going cooperative venture with Sarasota County and its utility system. As part of this effort, an extensive re-piping of the system is underway to allow for the decommissioning of the older, Island Beach Waste Water Plant. The Eastside Waste Water Plant (shown at right) is now permitted to treat 6 million gallons a day of effluent. Currently the waste water system is comprised of approximately 101 miles of gravity sewer mains, 32 miles of sewer force mains and 77 lift stations. The reclaimed water system is comprised of several large storage ponds/lakes located throughout the City and approximately 37 miles of reclaimed water mains.

City of Venice Existing Served Areas

The City's Engineering Department has undertaken a review of each of the utility systems and produced GIS maps depicting existing areas served by each of the water resource utilities: potable water, waste water and reclaimed water. Through agreement with Sarasota County and recognizing their existing waste water customers, there are several areas in the northeast section of the City limits for which Sarasota County provides waste water distribution only. Since treatment occurs through the City's Eastside Waste Water Treatment Plant, no separate analysis of capacity or future needs has been completed. These collection areas of the Sarasota County waste water system have been accounted for in the capacity and future needs analysis of the City's treatment system. Currently the City and Sarasota County are in negotiations for the City to act as agent for waste water billing, plant capacity and impact fee collections within these areas. The attached Water Supply Planning Map Series 1: Existing Served Areas visually depicts these existing areas for which facilities and service is currently provided and in relation to the corporate limits of the City.



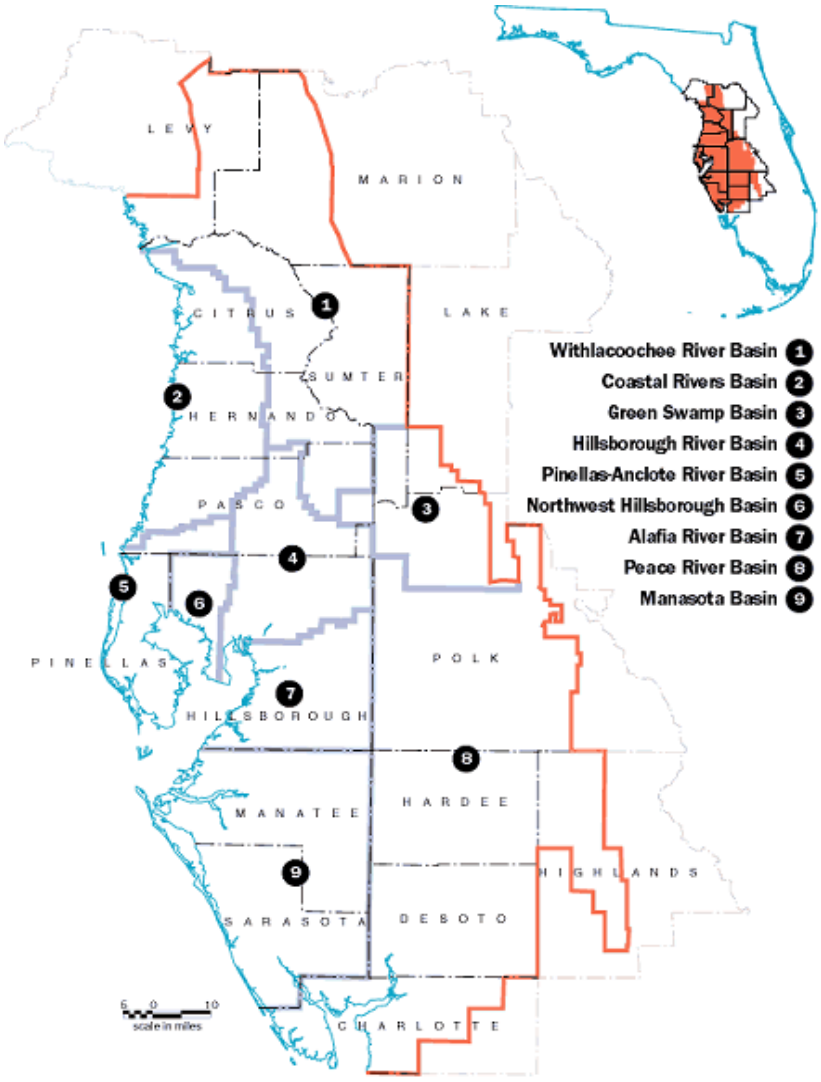
City of Venice Future Service Areas

As part of its adoption of updates to the Comprehensive Plan in 1999, the City of Venice contracted with the Southwest Florida Regional Planning Council to produce a series of policies and maps intended to guide future growth and development of the City, particularly as related to annexations of both existing developed areas and areas expected to

develop during the planning horizon. The areas intended for consideration as annexation candidates are depicted in the area referenced as the Potential Planning Service Area. Since preliminary analyses indicated that annexation of new areas would be necessary to ensure the sustainability of Venice as a community, these areas have been included in the future growth projections and analysis utilized to determine water resource and facility demands. The City does recognize that some of the properties within this overall area have already been developed and are served by the Sarasota County utilities system. The extent of the Potential Planning Service Area is reflected above.

Southwest Florida Water Management District

The City of Venice lies within the jurisdictional area of the Southwest Florida Water Management District. The district boundaries include a sixteen-county area that extends from Pasco County in the north to Charlotte County in the south. The district is one of five regional districts in Florida charged with the management, protection and enhancement of water and water-related natural resources. The legislative parameters and responsibilities for each district are found in the Water Resources Act (Chapter 373, Florida Statutes).



The Governing Board of the Southwest Florida Water Management District has adopted the following mission statement to guide its activities and efforts in meeting the responsibilities as outlined in the

Water Resources Act:

> "The mission of the Southwest Florida Water Management District is to manage water and related natural resources to ensure their continued availability while maximizing environmental, economic and recreational benefits. Central to the mission is maintaining the balance between water needs of current and future users while protecting and maintaining water and related natural resources which provide the district with its existing and future water supply."

Generally, the district's responsibilities fall within four key areas, including: water supply, flood protection, water quality and natural systems. The water supply planning effort and coordination called for by recent statutory changes serves to strengthen the impact of this mission and is intended to achieve improved coordination between local land use decision-making and water supply concerns.

Regional Water Supply Plan

The requirement for regional water supply planning originated from changes to state laws that were adopted in 1997 which specifically amended Chapter 373, Florida Statutes. Key components of the legislation included:

1. Designation of one or more water supply planning regions within the district.
2. Preparation of a district wide water supply assessment.
3. Preparation of a Regional Water Supply Plan for areas where existing and reasonably anticipated sources of water were determined to likely be inadequate to meet future demand.

In coordination with local governments and following an open public process, the Southwest Florida Water Management District completed its assessment of projected water demands and potential sources to meet these demands for the period from 1995 (the established base year) to 2020 and incorporated this assessment into an approved Regional Water Supply Plan in 2001. The Regional Water Supply Plan provides a framework for future water management decisions where the hydrologic system is stressed as a result of withdrawals from the system and it identifies potential options and costs for developing these options to meet long term water resource needs. The plan addresses a ten-county planning area from Pasco in the north to Charlotte in the south and includes the City of Venice.

The City of Venice also lies within an area designated by the Southwest Florida Water Management District in 1992 as the Southern Water Use Caution Area (SWUCA). The SWUCA

encompasses 5,100 square miles in the southern portion of the District. Its designation was in response to impacts to the water resources caused by ground-water withdrawals throughout the area.
These impacts include saltwater intrusion in coastal areas, reduced streamflows in the upper Peace River basin, and lowered lake levels along the Lake Wales Ridge. The District has initiated a series of management actions, both regulatory and non-regulatory, to address these resource
issues. Although the full ramifications of the SWUCA on the City's future water supply situation has yet to be determined, it is clear that the future availability of ground water in the region will be limited and that coastal areas in particular will be encouraged to seek alternatives to ground water to meet additional water supply needs.

Local Land Planning and Water Supply Initiatives

In concert with the City's consideration of the areas within the Potential Planning Service Area as annexation candidate sites, the City has implemented a multi-faceted annexation strategy. Key components of this strategy include a recognition of the need to be an efficient service provider, ensure that the impacts of new development bear proportionate share of costs for new services, and consider the competitive nature of utility service provision within the greater Venice area as a result of both private and other local government utility service providers.

The following tools are utilized in consideration of each annexation opportunity:

1. Economic viability of the potential development options as relates to revenue generation capacity and service level impacts.

2. Compatibility of potential development options with existing and future land use plans of the adjoining areas within the existing corporate limits.

3. Imposition of the requirement for pre-annexation agreements that serve as a contract running with the land that establishes expectations across several areas:

< costs of any off-site or on-site utility service line extensions to be borne by the annexing property.
< specific timing provisions to require the filing of appropriate Comprehensive Plan and zoning applications to bring the property under the jurisdiction of the City land development standards.
< specific identification of any special development standards or exactions that may be required to mitigate the impacts of future development of the property.
< payment of a 'privilege/mitigation' annexation fee based upon the future development of the property that is specifically tied to equivalent residential units (current fee is approximately $1630 per edu) and which is

payable at the time of issuance of certificate of occupancy or connection to the City's water system.

< dedication of any lands for public purposes - including requirements for dedication of future potable water well sites, required easements for utility extensions, water storage areas, reclaimed water storage ponds and areas for other general government purposes (fire stations, parks, public streets, etc.).

< establishment of maximum allowable development density and intensity as a means of ensuring that utility system impacts are definable and can be anticipated as part of the City's capital improvement and operational budget planning.

4. Provide for the opportunity to concurrently review required Comprehensive Plan amendments, rezoning petitions, subdivision platting, and site and development plan applications so that impacts of the development can be more precisely determined and known to the community.

These land use management tools have provided the opportunity to secure and plan for water resource needs for both existing and future residents of the Venice community. Consideration of items such as future water well sites early in the process of considering annexation of properties allows for the needed limits on surrounding uses and separations from other water resource facilities to be incorporated into the subsequent land development permitting steps.

Conservation Program

The City of Venice has implemented a water conservation program that reflects the following major components:

1. Education

A series of informational materials are made available to the community through distribution at City offices, the public library and other non-profit agencies. These materials highlight the benefits of water conservation and provide tips for homeowners and businesses to conserve water. Leak detection kits and water conserving hardware are made available at the utility billing and utility service offices.

2. Rate System

The City has implemented a rate system that provides for escalating water charges as consumption increases for its reuse system. A similar potable water rate system is currently under review as required by the existing Comprehensive Plan as part of an on-going utility rate study.

3. Reuse Availability

The City initiated the development of a reclaimed water system in cooperation with the Southwest Florida Water Management District as a funding partner. As new areas are constructed, developments install reuse distribution lines for use by individual homeowners and for irrigation of any large open areas (common areas, golf course, etc.). A major system expansion to previously developed areas, particularly on the island of Venice, is currently under construction to create the transmission system for future distribution network and individual property owner connections.

4. Testing and Rehabilitation

A comprehensive meter testing and replacement program has been instituted to provide for an accurate water use system. Meter replacements assist with leak detection and elimination, as well as to ensure consumer awareness of City efforts to conserve water use.

5. System Maintenance program

An on-going preventative maintenance program that includes line replacements, valve checks and plant facility inspections is in place to aide with conservation efforts. Recent changes to water plant components have led to increased recovery rates of potable water in relation to discharge through the reverse osmosis system. Included within this program is the City's effort to protect against cross connection to the potable water system in order to ensure that potentially hazardous do not contaminate a single supply, neighborhood or the distribution system itself.

Reclaimed Water System Impacts

Reclaimed water is water that is beneficially reused after being treated to at least secondary wastewater treatment standards. The use of reclaimed water decreases the reliance on potable water supplies and reduces the discharge of waste water effluent to surface waters. The City of Venice has an active reclaimed water program in place to aide with the reduction to potable water demands and withdrawals from regionally significant water supply sources. The system is operating in conjunction with the Eastside Waste Water Treatment Plant and has a design capacity of 6.5 millions gallons per day for production.

The City is currently running transmission lines from the Eastside Wastewater Treatment Plant off Laurel Road, east of I-75, to the island. Once transmission lines are installed, the distribution lines will be installed, making reuse water available to all residents of the City. It is estimated that the entire project will take approximately 10 years to complete. The required system improvements are reflected in the required ten year capital improvement program.

Local Water Supply Initiatives

Through participation in the Peace River/Manasota Regional Water Supply Authority, the City of Venice has been active coordinating with other water suppliers in the area. The establishment of the Water Planning Alliance has been a critical first step in undertaking comprehensive, regional system planning and engineering study. The Water Planning Alliance is a voluntary planning body formed to work collectively on water issues facing the region. It is governed by one elected official from each participating local entity - Charlotte, DeSoto, Manatee and Sarasota Counties; the Cities of Arcadia, Bradenton, North Port, Palmetto, Punta Gorda, Sarasota and Venice; the Town of Longboat Key; and the Englewood Water District.

The Water Planning Alliance as established an initial framework for intergovernmental cooperation on regional water issues that includes consideration of existing resources and environmental impacts of ground and surface water withdrawals. The Alliance has also begun to examine the opportunity for a broad regional approach that will consider other non-traditional options to meet long term potable water demands. These options include the potential for large surface water reservoirs and desalinization.

Five- and Ten-Year Water Resource Projections

The City of Venice has completed an historical analysis of water resource demands and population change identifying growth trends in terms of population growth, projected water demands and wastewater treatment capacity requirements through the year 2013 (See Attachment 2: Water Supply Planning Analysis - Geographic Service Area Capacity).

Population growth trends over the period 1970 to the present have been considered in developing projections of future population growth. Baseline 2000 United States Census data have provided the primary component for extrapolating expected population change, togther with consideration of a significant seasonal population impact during a portion of the year - primarily in the January through April period. As verified through the latest Census counts, seasonal population averages approximately one third of the total permanent population. Population changes from 2000 to the present are based upon the approved Bureau of Economic and Business Research population estimates and are tied explicitly to new building permit data, annexation changes and new utility connections. From the period of 1970 to 1980 the population of the City doubled as new development and conversion of vacant lands led to more full time, permanent residents. The period of 1980 through 2000 saw a decrease in rate of population growth due to diminishing lands within the City available for development. Growth did occur around the City within areas predominantly in unincorporated Sarasota County providing population growth and impacts to County provided facilities and services.

Water Facilities Capital Improvement Program

An overview of the current capital improvements plan is included in Attachment 1.

Ten Year Water Supply Plan
(Capital Improvement Schedule - Fiscal Year 2003 - 2012)

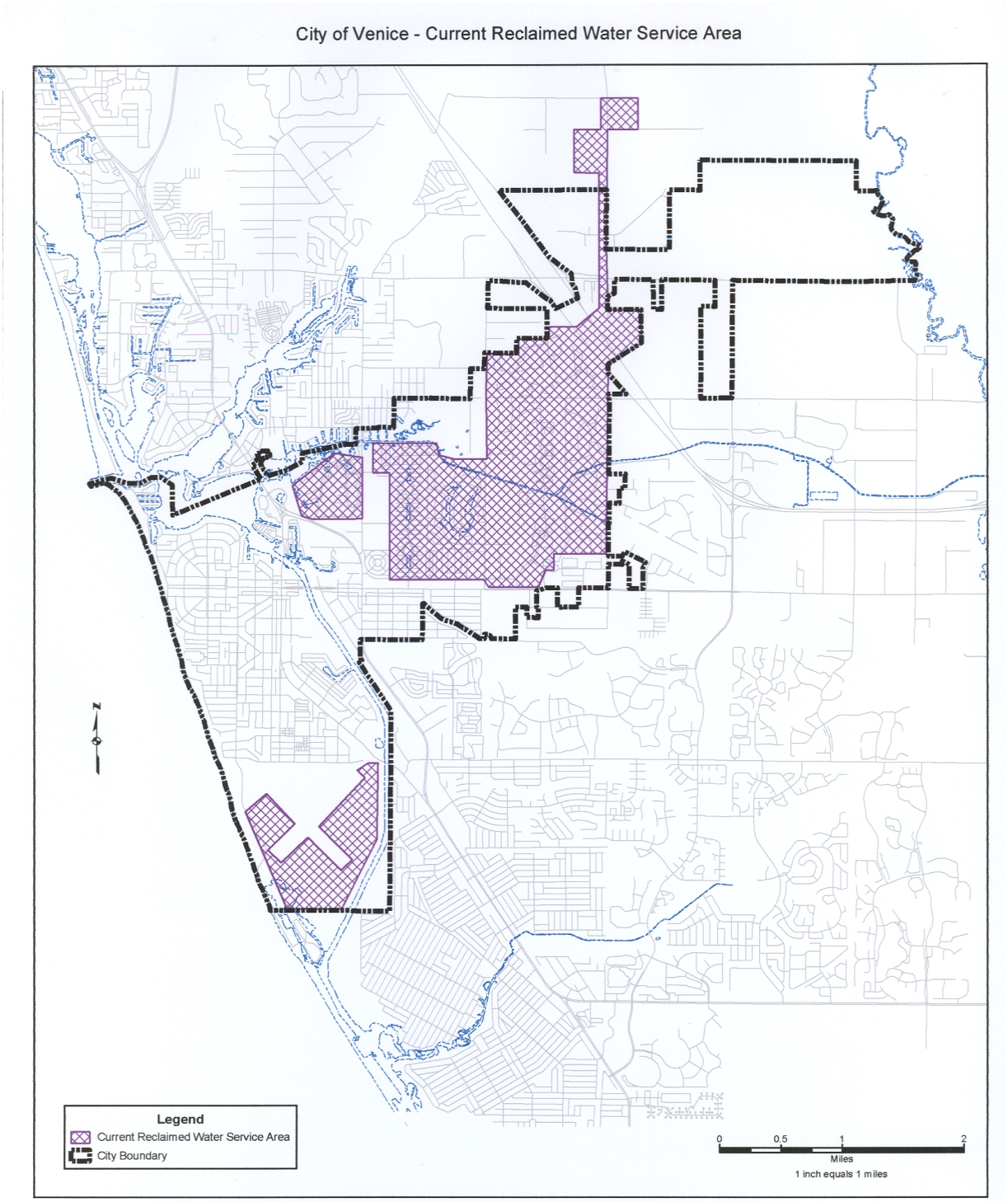
Fiscal Year	Project Description		Project Costs ($thousands)
2003	1. Water Main US 41	$115	
	2. Water Distribution Main Improvements	$150	
	3. Well Field Expansion/Raw Water Main	$385	
	4. Island Beach Plant Decommissioning		
	A. Sewer System Modifications	$3,378	
	B. Reuse System Modifications	$1,850	
	5. County Sewer Interconnect	$286	
	Subtotal		**$6,164**
2004	1. Lift Station Refurbishment	$100	
	2. Island Beach Plant Decommissioning		
	A. Sewer System Modifications	$1,100	
	B. Reuse System Modifications	$1,210	
	Subtotal		**$2,410**
2005	1. Water Plant Production Enhancement	$250	
	Subtotal		**$250**
2006	1. Lift Station Refurbishment	$100	
	Subtotal		**$100**
2007	1. Ground Storage Tank	$600	
	2. Utility Relocates - US 41 Bypass	$300	
	Subtotal		**$900**
2008	1. Water Distribution Main Improvements	$175	
	2. Lift Station Refurbishment	$125	
	Subtotal		**$300**
2009	1. Water Plant Production Enhancement	$250	
	Subtotal		**$250**
2010	1. Lift Station Refurbishment	$100	
	Subtotal		**$100**
2011	1. Water Distribution Main Improvements	$150	
	2. Well Field Expansion/Raw Water Main	$400	
	Subtotal		**$550**
2012	**no capital requirements/needs defined**		

Pursuant to the requirements under the new statutes, a ten year work plan to meet projected system and capacity needs has been developed and is reflected above. Critical system improvements are currently underway and reflect the City's on-going commitment to establish a city-wide reclaimed water system that can act to reduce potable water demands for residential, recreational and commercial irrigation needs. Capital facilities for each utility system are reflected in the attached Water Supply Map Series 3: Existing Facilities. As new capital facilities are constructed these maps will be updated to reflect overall system status.

Regional Water Supply Plan Compatibility

With relatively modest population growth projected to occur within the City limits proper, existing water supply from the intermediate aquifer has been determined to be available in sufficient quantities to meet projected demands. Water supply is augmented through interconnections with other local systems that derive potable water from regional surface waters. The comprehensive implementation and construction of the City's reuse system is expected to continue to offset impacts of new development and reduce demands that would otherwise occur for both additional aquifer and surface water sources. The City has committed to additionally cooperate in the consideration of a regional desalinization facility that can act to provide water supply needs beyond a twenty year planning horizon. These sources and means of meeting potable water demand are compatible with the water supply sources identified through the existing Regional Water Supply Plan.

WATER SUPPLY PLANNING MAP SERIES 1:
EXISTING SERVED AREAS
(WATER, WASTEWATER & RECLAIMED WATER)



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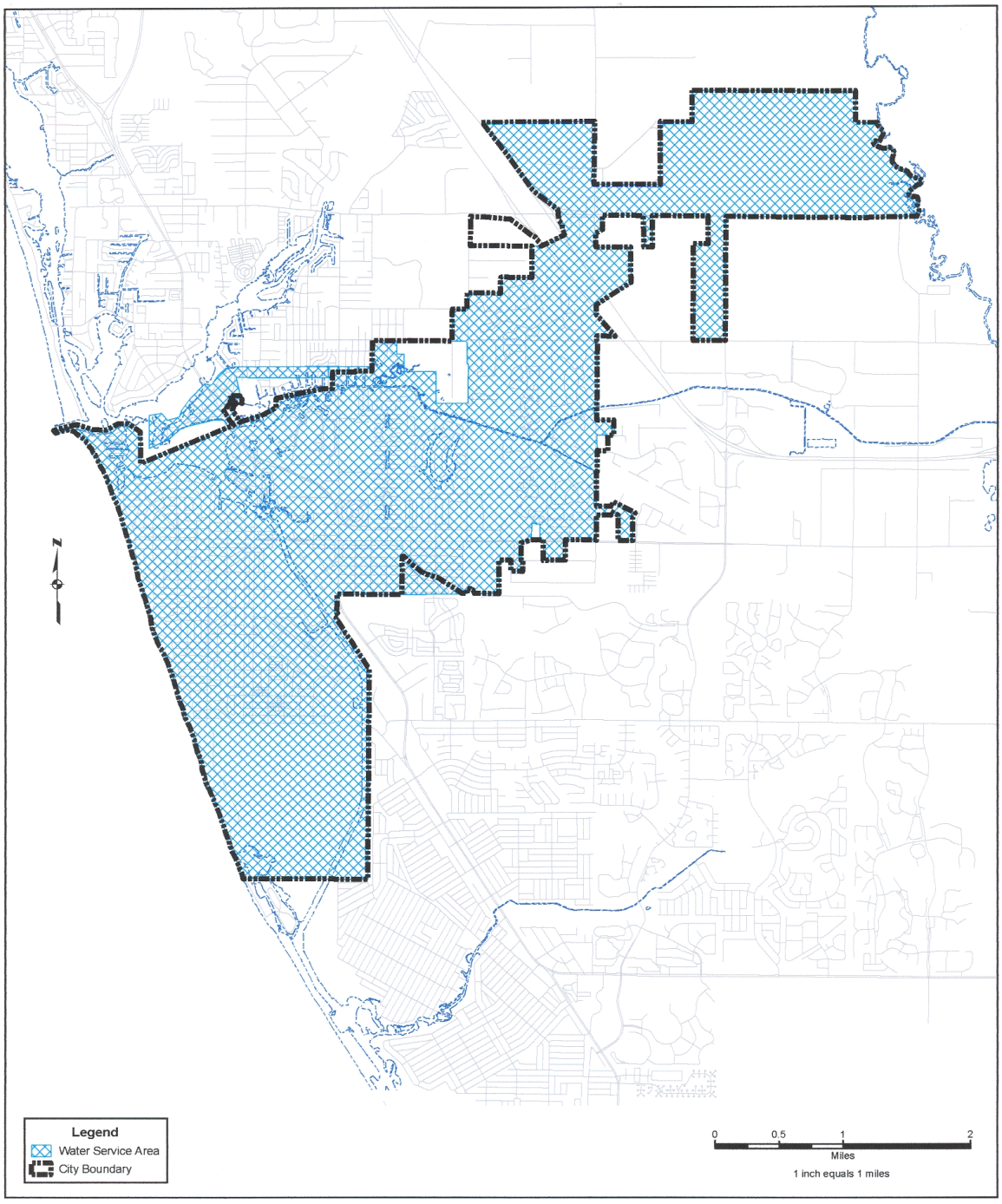
WATER SUPPLY PLANNING MAP SERIES 2:
AUTHORIZED SERVICE AREAS
(WATER, WASTEWATER & RECLAIMED WATER)

City of Venice - Water Service Area



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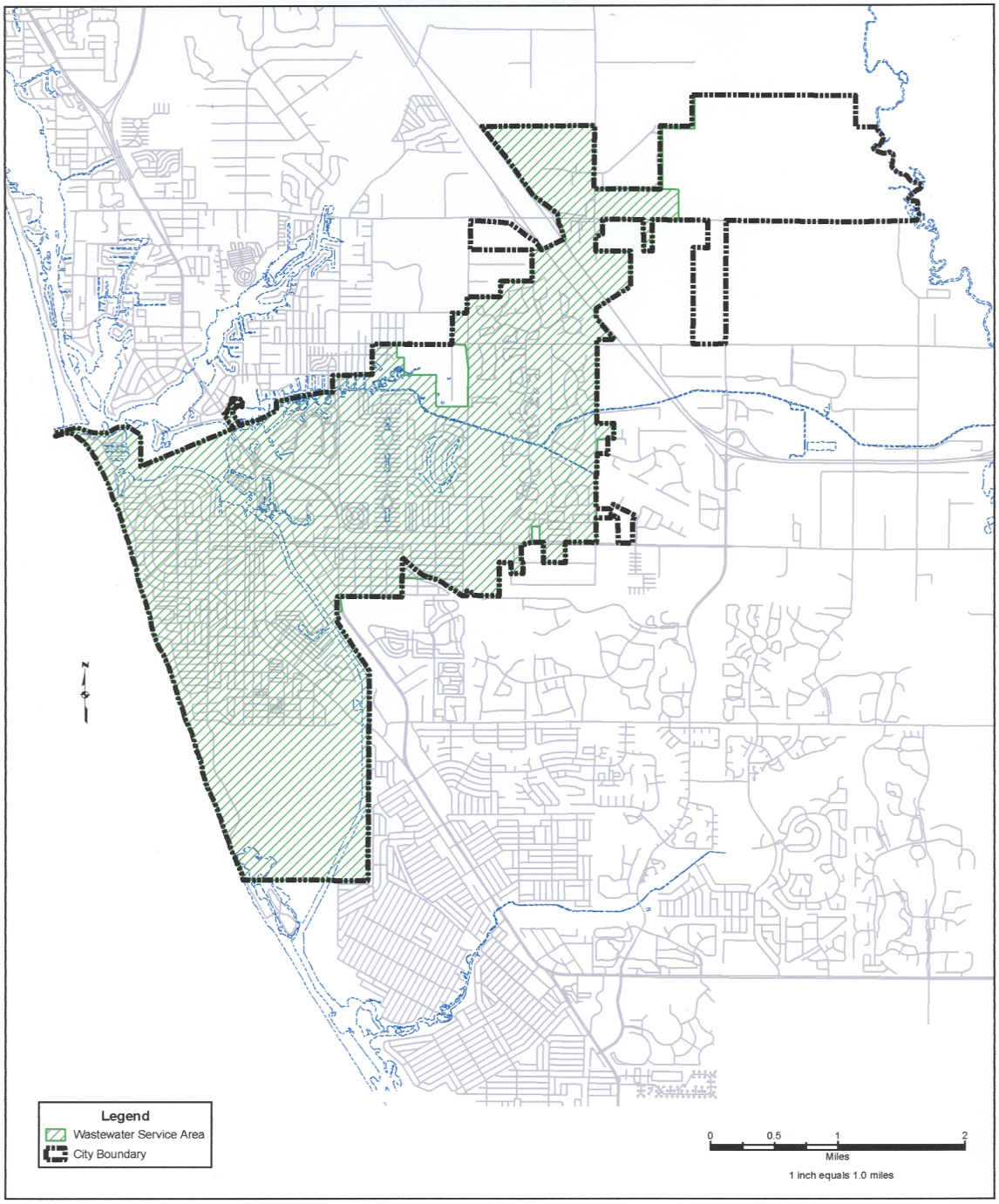
City of Venice -Wastewater Service Area



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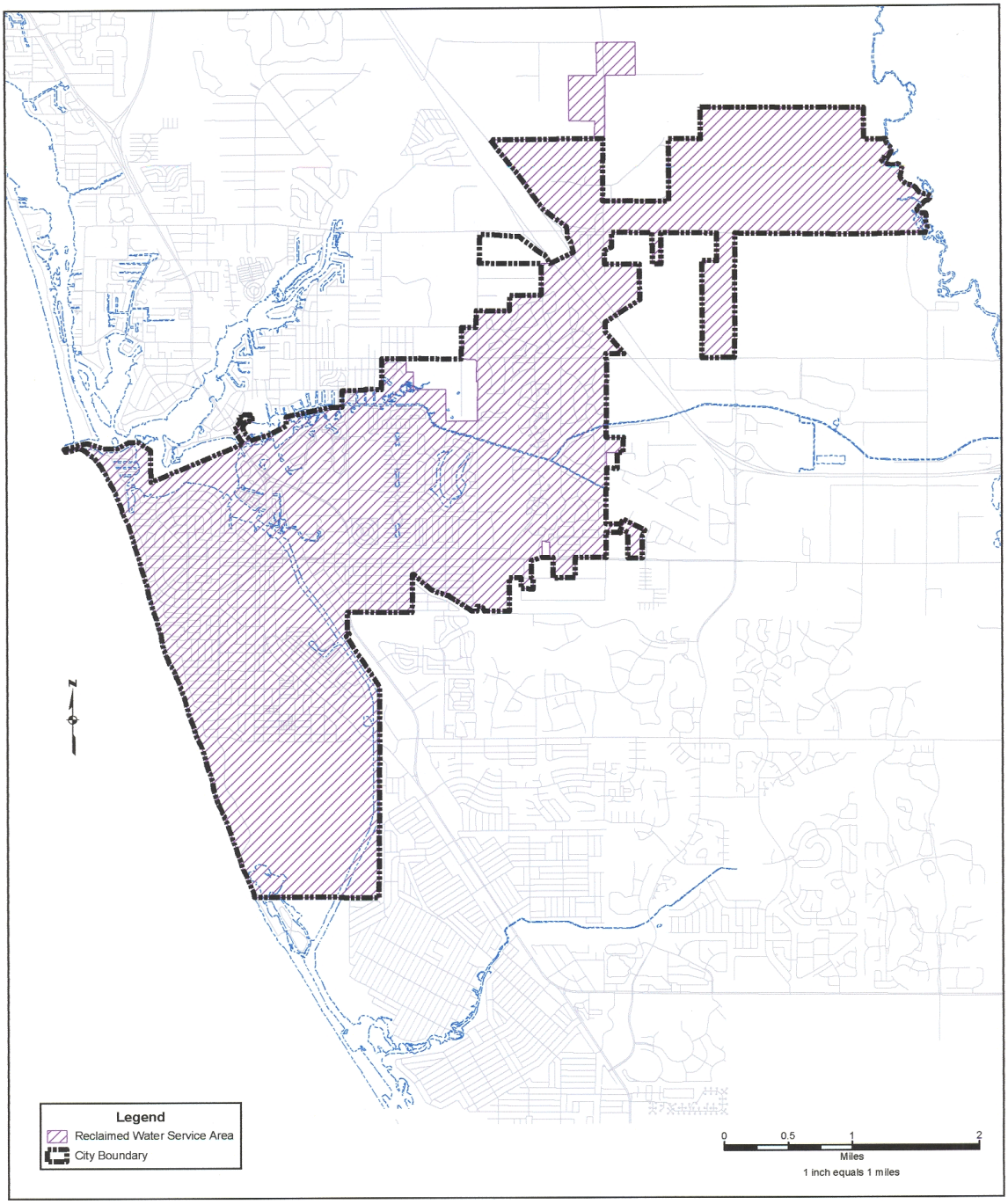
City of Venice - Reclaimed Water Service Areas



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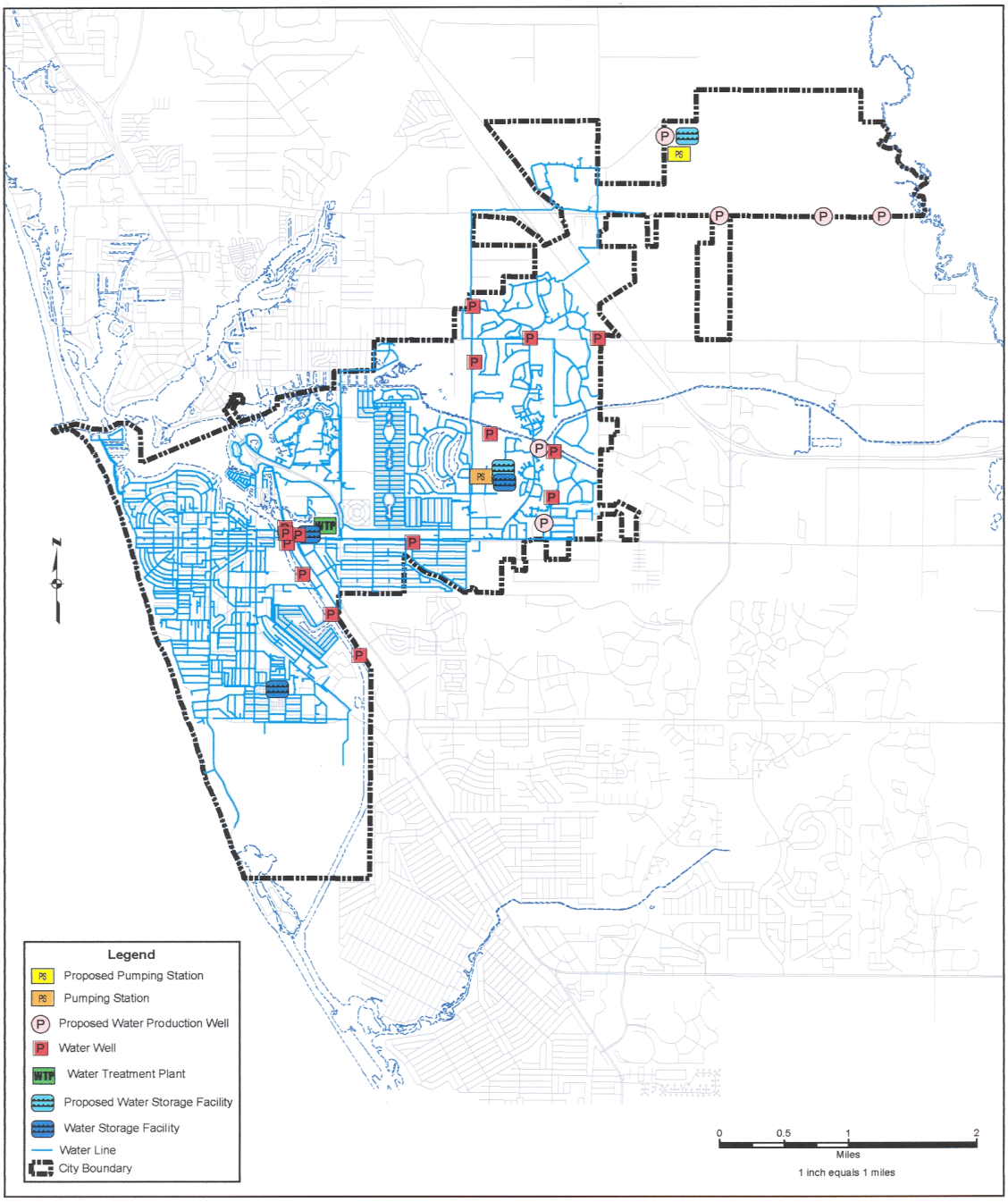
WATER SUPPLY PLANNING MAP SERIES 3:
EXISTING FACILITIES
(WATER, WASTEWATER & RECLAIMED WATER)

City of Venice - Water Facilities



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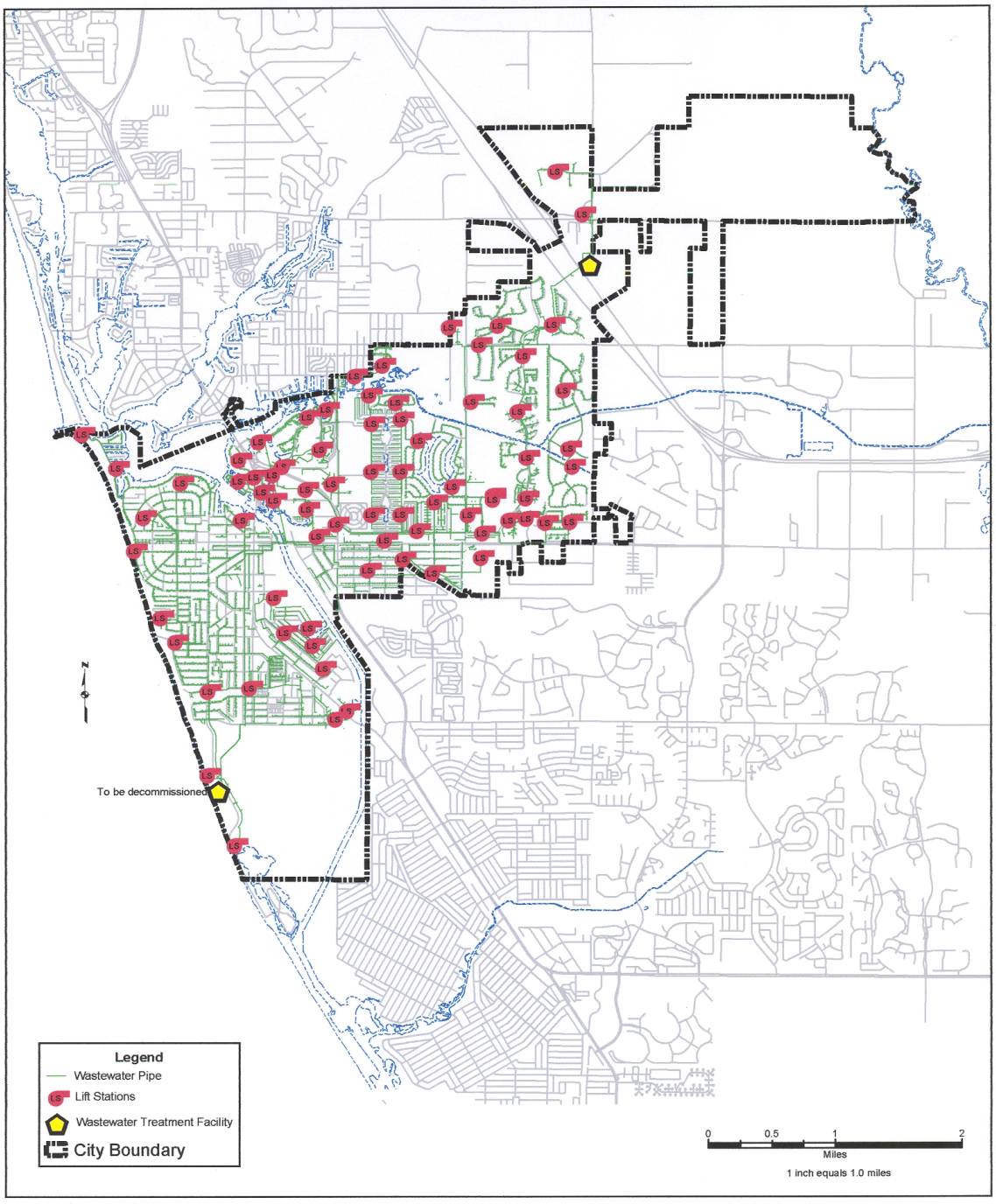
City of Venice -Wastewater Facilities



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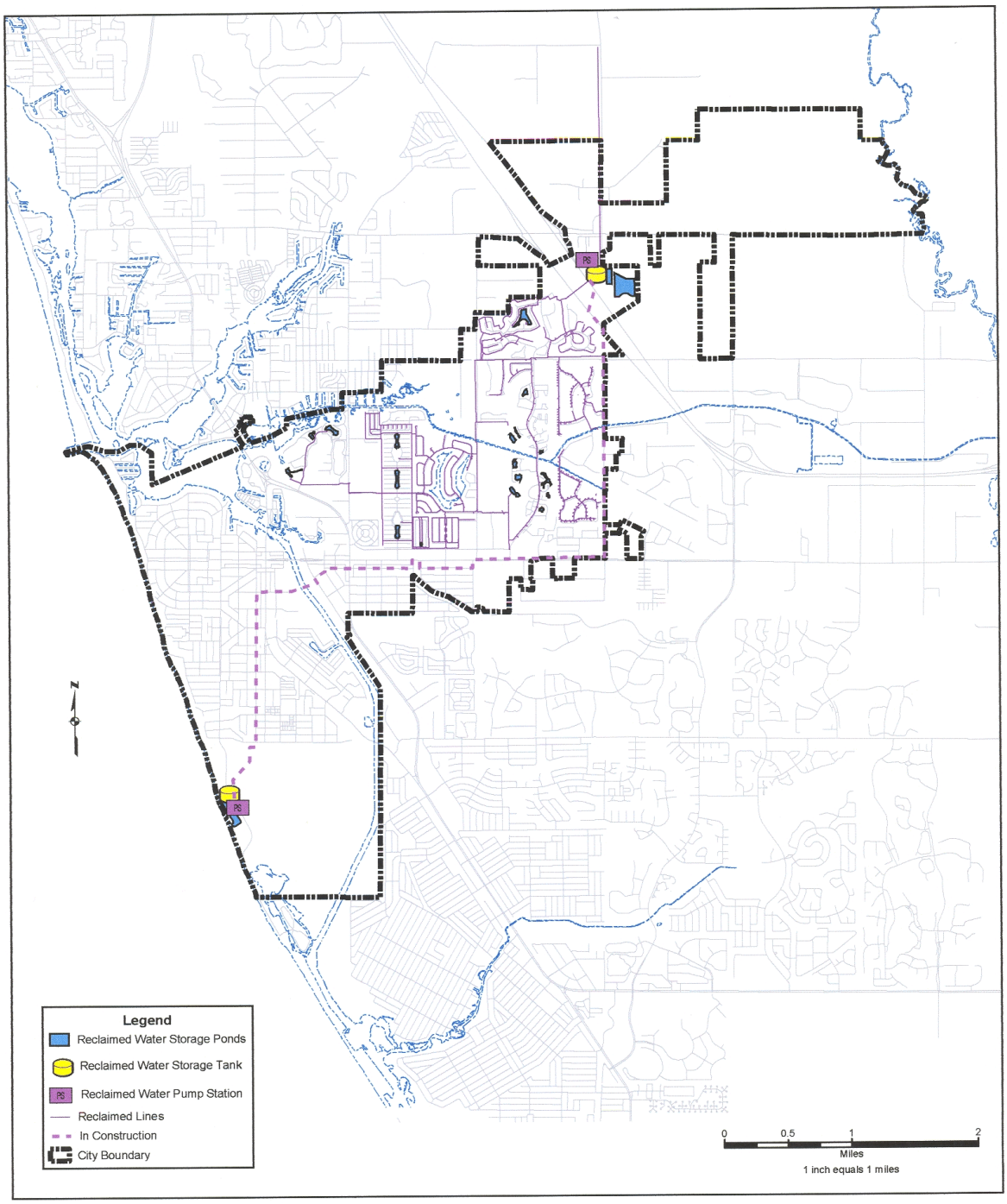
City of Venice - Reclaimed Water Facilities



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ATTACHMENT 1:
CAPITAL IMPROVEMENTS PROGRAM - EXISTING

ATTACHMENT 2:
WATER SUPPLY PLANNING ANALYSIS -
GEOGRAPHIC SERVICE AREA CAPACITY

RAPHIC SERVICE AREA CAPACITY ANALYSIS

	1970	1980	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Venice Population	6648	12153	17052	17764	18151	18628	18873	19182	19554	19921	20258	20620	20997	21374	21753	22144
Venice Population Change (prior period)	na	5505	4899	712	387	477	245	309	372	368	337	362	376	377	379	391
Building Permits Issued	258	983	1482	3255	3799	4122	4472	4297	4385	4341	4363	4352	4357	4355	4356	4355
e Annual Population Growth (over prior period)	na	550.5	489.9	71.2	387	477	245	309	372	368	337	362	376	377	379	391
Percentage Population Growth Percentage (over prior period)	na	8.28	0.04	0.42	2.18	2.63	1.32	1.64	1.94	1.88	1.69	1.79	1.82	1.80	1.77	1.80
Seasonal Population Estimate (based upon U.S. Census Count)	1330	2431	3223	3375	3449	3539	3586	3645	3715	3785	3849	3918	3989	4061	4133	4207
e Water																
Plant Production Capacity (million gallons per day)	na	2.00	3.00	4.00	4.00	4.75	4.75	4.75	4.75	4.75	4.975	4.975	4.975	5.2	5.2	5.425
Plant Production Capacity Projected Need (million gallons per day)	na	2.00	3.00	4.00	4.00	4.31										
aw Water Pumped per day (millions of gallons)	na	2.5	4.15	4.26	4.32	4.31	4.40	4.48	4.56	4.65	4.73	4.81	4.90	4.99	5.07	5.17
eated Water Pumped To System per day	na	1.68	2.12	2.24	2.22	2.26	2.29	2.33	2.37	2.42	2.46	2.50	2.55	2.59	2.64	2.69
nnual Million Gallons of Potable Water Lost	na	no data	no data	2.70	4.41	5.92	5.16	5.54	5.35	5.45	5.40	5.42	5.41	5.42	5.41	5.42
d Water Storage Capacity (million gallons per day)	na	1.60	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
eated Water gallons per person per day use	na	138.24	124.33	126.10	122.31	121.32										
eated Water gallons per person per day use demand							121.31	121.31	121.31	121.31	121.31	121.31	121.31	121.31	121.31	121.31
esidential Connections	na	na	na	7044	7289	7546	na	na	na	na	na	na	na	na	na	na
ulti-family Connections	na	na	na	7170	7170	7250	na	na	na	na	na	na	na	na	na	na
ommercial Connections	na	na	na	1300	1330	1352	na	na	na	na	na	na	na	na	na	na
rigation Connections	na	na	na	232	241	242	na	na	na	na	na	na	na	na	na	na
Total Water System Connections	na	5202	6979	15746	16030	16390	na	na	na	na	na	na	na	na	na	na
Total Water System Connections Projected							16608	16880	17207	17531	17827	18146	18477	18809	19143	19486
vater Treatment																
vater Treatment Plant Capacity (million gallons per day)	3.00	3.00	3.00	3.55	3.55	3.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55
illion gallons per day treated	na	1.30	1.50	2.21	2.26	2.74	2.33	2.37	2.41	2.46	2.50	2.55	2.59	2.64	2.69	2.73
ewer Connections	na	4779	6405	15561	15873	16388	16442	16711	17035	17355	17649	17965	18292	18621	18951	19292
ned Water																
ned Water Plant Production Capacity (gallons per day)	na	3	3	3.55	3.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55
ned Water Storage Capacity (million gallons)	na	22	22	62	62	62	62	62	62	62	62	62	62	62	62	62
illion gallons per day created	na	1.3	1.5	2.21	2.26	2.74	2.33	2.37	2.41	2.46	2.50	2.55	2.59	2.64	2.69	2.73
illion gallons per day underutilized/lost to treatment/disposal	na	0	0	0	0.07	0.35	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08
illion gallons per day pumped to system for use	na	na	1.5	2.21	2.19	2.39	2.26	2.30	2.34	2.39	2.43	2.47	2.52	2.56	2.61	2.65
eclaimed Water Connections	na	na	1	2373	2382	2414	2511	2586	2741	2878	3022	3113	3206	3302	3401	3503

ATTACHMENT 3:
EXISTING
POTABLE WATER SUPPLY ELEMENT
DATA AND ANALYSIS

POTABLE WATER DATA AND ANALYSIS		

Purpose
(As stated by Chapter 9J-5 of the Florida Administrative Code):
The purpose of the potable water element is to provide for necessary facilities and services for public health and environmental protection correlated to future land use projections.

INTRODUCTION

The state of Florida is surrounded by saline ocean waters, yet it also has an adequate supply of fresh water in its surface rivers and lakes as well as in its ground waters. Many of the surface waters, however, including those in the vicinity of the City of Venice, are not of adequate quality to justify the treatment requirements for a potable water supply. Therefore, the primary source of potable water is from underground water sources like the Floridan and the Intermediate Aquifer System and its associated overlying aquifers.

BACKGROUND

The City of Venice, incorporated in 1926, began its municipally-owned water utility with the purchase of its first water treatment plant in 1945. The treatment capacity at that time was 12,000 gallons per day (gpd). The municipal water system has grown steadily to keep pace with the growth of the city.

Earlier wellfields operated by the city withdrew water from shallow aquifers in the surficial Upper Hawthorn formation, but they were not reliable because they were prone to reductions in water quality due to their proximity to the ground surface. These shallow wells, located along East Venice Avenue and Pinebrook Avenue, were abandoned in 1990 and were subsequently plugged by the Southwest Florida Water Management District (SWFWMD). The Intracoastal Wellfield, developed in 1975, and the Eastern Wellfield, developed in 1990, draw from the Intermediate Aquifer System. The maximum withdrawal rate, as permitted by SWFWMD, is 3.94 MGD for the Intracoastal Wellfield and 3.45 MGD for the Eastern Wellfield, for a total permitted withdrawal of up to 7.39 MGD. The total permitted annual average withdrawal rate is 5.09 MGD.

In 1987 the city developed a Water Master Plan for evaluating its current system. The plan included recommendations for necessary improvements to the distribution system and water treatment plant that would meet municipal standards and future potable water demands. As a result of the recommendations within the master plan, the city abandoned its lime softening water treatment plant and the associated shallow aquifer wells. The old plant was replaced completely with a reverse osmosis facility. Additional deeper wells drawing from the intermediate aquifer system were added to provide water supply to the expanded plant. Water conservation measures and projects have been implemented by the city to reduce water demand. The 1993 Phase I Reuse Program was developed along with a reuse distribution system that offers the public reclaimed water for irrigation purposes.

INVENTORY

Water Supply

The City of Venice owns and operates two water supply wellfields from which it draws groundwater for its municipal water needs. These wellfields are known as the Intracoastal Wellfield and the Eastern Wellfield. The present source of potable water for the city is the intermediate aquifer system, and the present water production of the system averages annually about 2.2 million gallons per day (MGD).

The treatment plant has a present design treatment capacity of 4.0 MGD (4.225 MGD by adding 48 permeators to the existing skids) and is expandable to an ultimate design treatment capacity of 6.225 MGD with the addition of two more process bays. However, the maximum daily production is limited to 3.69 MGD due to limitations imposed by the city's SWFWMD water use permit. The city's Water Master Plan references expansions to 5 MGD and then to 6 MGD if required. Although the first of these expansions was proposed for 1994, reductions in per-unit consumption have allowed this expansion to be deferred.

Alternative water sources are typically required for potable systems to provide backup during failure or contamination of wells, failure of water treatment or pumping equipment, or unusually high water demands such as might be associated with a major fire event.

The primary alternative water source for the City of Venice is redundant (standby) wells. The city has twelve wells permitted through SWFWMD, seven of which are primary and five of which are standby. Presently the standby wells are used on an emergency basis in the case of the failure of a primary well. The maximum pumping capacity of the wellfields is 12.48 MGD, or 5.09 MGD annual average well capacity without pumping the reserve (standby) wells. A secondary alternative is a system of existing interconnects between the city's distribution system and those of Sarasota County Water Plants. An interlocal agreement between Sarasota County and the city for an emergency bulk water sale was executed in December, 1994. The interlocal agreement allows either party to purchase water from the other during an emergency water shortage which may threaten the health and welfare of the citizens.

The Peace River Manasota Regional Water Supply Authority has completed an expansion of its

water treatment plant, transmission mains, and increased withdrawals from the Peace River. This project includes a transmission main to bring the water to Sarasota County.

Water Treatment

The raw water from the two existing wellfields is pumped directly to the water treatment plant. The City of Venice owns and operates a single water treatment plant, located along East Venice Avenue between the Intracoastal Waterway and US 41 Bypass.

In 1975 the City of Venice began using a reverse osmosis (RO) water treatment system using groundwater from the deeper intermediate aquifer in conjunction with the existing lime softening plant. The facility was completely converted to an RO process in 1990, allowing the abandonment of the shallow wells. Due to decreasing water production from the lime softening plant and the abandonment of the shallow wells, the lime softening plant was taken out of service at that time and has been demolished.

Water Distribution

The potable water produced at the RO plant is transferred directly from the 1.0 million gallon (MG) finished water clear well into the water distribution system. Three water storage tanks, two of which are elevated, are provided within the distribution system to provide fire storage volumes and to dampen the effects of diurnal fluctuations in water demand. **Table PW-1** lists the facilities providing storage for treated water. The ground storage tank is furnished with a booster pump station.

Table PW-1: Treated Water Storage Facilities

Facility Description	Volume (Million Gallons)
Clear well at treatment plant	1.0
Elevated tank at treatment plant	0.3
Elevated tank north of airport	0.3
Booster pump station ground storage tank	1.5
Total Storage Capacity	**3.1**

Source: Venice Utilities Department.

The 1988 Master Plan calls for additional storage capacity to increase over its 20-year planning period to a total of 3.66 million gallons. The distribution system, consisting of distribution mains, service laterals, and fire hydrants, has been expanded to include all incorporated sections of Venice and certain unincorporated enclaves.

Wellfield Monitoring

In 1990, the city initiated a computerized wellfield monitoring system. This computerized program monitors the pumpage, drawdown and hours of operation of the production wells. The program includes the sample testing of the water manually for water quality analysis, which is then recorded and maintained by the program. In addition to the production wells, there are seven monitoring wells which are checked for water level. Two of these monitoring wells are also checked for water quality on a regular basis. This information is also entered into the program. Utilizing this system, the city has the ability to control and optimize production well withdrawals to significantly reduce the potential for adverse impacts to the aquifer.

SUMMARY OF EXISTING CONDITIONS

In summary, the present potable water system for the City of Venice has a maximum permitted well withdrawal capacity of 7.39 MGD (which results in 3.69 MGD of treated water), a treatment capacity of 4.0 MGD, and a system storage capacity of 3.1 MG. The 1994 average water demand was estimated to be 2.17 MGD, and the 1994 peak day demand was 3.24 MGD. The treatment plant and storage capacity exceed the city's current needs. However, the SWFWMD water use permit will need to be modified in the future to allow use of the additional capacity of the treatment plant. This modification was requested in the application for permit renewal, which was submitted in August, 1996.

Level of Service

The 1989 Venice Comprehensive Plan established a Level of Service standard (LOS) which is a measurable service standard for different community infrastructure. The current policy requires the city to ensure a minimum LOS of 131 GPD and a peak LOS of 144 GPD. In order to ensure compliance with the LOS standard, the city in 1993 reviewed several issues concerning treatment capacity for potential new development. The City authorized Boyle Engineering to prepare a Capacity Analysis Report. The report's methodology for determining available capacity (consumption per unit) was based on Equivalent Residential Units (ERUs), and three Water Use Permit withdrawal flow limitations: average annual flow, maximum monthly flow and maximum daily flow.

Boyle's Capacity Analysis Report concluded that the level of service identified in the 1989 comprehensive plan was out of date and that concurrency management should be updated to reflect current conditions. As discussed earlier, water supply is limited not by the treatment plant capacity but by water withdrawal limitations imposed by the SWFWMD Water Use Permit. Average annual flow was determined to be the limiting factor for determining the level of service to be applied to calculating available capacity and future development connections. ERUs were chosen as the measuring unit for the level of service (LOS) instead of population, which was used in the previous comprehensive plan. This change was made because ERUs are more identifiable and consistent than population and, therefore, provide a more accurate measurement of the number of existing and potential future connections to the City's water.

The City of Venice's Potable Water Customer Base includes a significant proportion of mobile home parks and multi-family dwellings. For this reason, coupled with the significant amount of seasonal residents during the winter months, the population per ERU (Equivalent Residential Unit) is approximately 1.5 (varies between 1.4 & 1.8) people per ERU.
One explanation for the City's low water demand per ERU is the City's effective water conservation measures. In 1993 the City implemented a reuse system, which uses highly treated wastewater effluent for residential/agricultural irrigation, to help reduce the amount of potable water used for irrigation purposes. In addition to the reuse system, additional projects and regulations have aided in water conservation. These conservation measures include:

I. Minimal leakage within the City's "tight" water distribution system (confirmed by SWFWMD)

II. Low percentages of unaccounted water usage;

III. The City's ordinance for limiting water use under emergency drought conditions;

IV. The City's policy of providing seasonal disconnection at no charge to seasonal residents to avoid undetected leakage losses within residences;

V. Public awareness; and

VI. The Standard Building Code requirement for low yield plumbing fixtures.

Table PW-3 summarizes current and future water demands and the level of service (gpd/ERU). As mentioned earlier, the unit of measurement of the LOS has been changed to more accurately permit and monitor current capacity. The average demand and the peak demand is expressed in gallons per day per ERU.

Concurrency Management

In 1994, the city adopted Land Development Regulations, which include the Concurrency Management Ordinance (CMO). This ordinance implements the LOS requirements established in the 1989 Comprehensive Plan. The CMO establishes the necessary regulations for the evaluation of development orders to ensure that adequate public facilities and services are available concurrent with the impacts of development. State regulations for concurrency management require that water facilities have adequate capacity for new development before a certificate of occupancy (C.O.) is issued. The city intends to exceed this requirement by requiring concurrency to be met at the time a building permit is issued. Adhering to the Water Master Plan will provide an instrument to trigger additional capacity in a timely manner.

Table PW-3: Water Demand Projections

Year	Resident Population[1]	Functional Population[1]	Number of ERU's[3]	Average Flow (MGD)[2]	Average Demand (gal/ERU)	Peak Demand[4] (MGD)	Peak Demand (gpd/ERU)
1995	18,450	25,299	14,528	2.21	152	3.30	227
2000	21,246	29,144	16,729	2.54	152	3.80	227
2005	22,556	30,941	17,524	2.66	152	3.98	227
2010	22,556	30,941	18,152	2.76	152	4.12	227

e: Boyle Engineering Corporation - 1995

1. University of Florida BEBR, 1994
2. Adjusted to account for water lost to Venice Gardens Utilities System (1994 Average Flow)
3. Total Equivalent Residential Units (ERUs) represents the number of potable water connections to the city's water system expressed in terms of residential units. ERU's are independent of seasonal population variation (functional versus resident population).
4. Peak Demand is based on maximum daily flow that occurred at the WTP for the referenced year.

The City of Venice Utilities Department has in place accounting procedures to confirm that water capacity remains available to existing and new connections. In 1984, the City undertook a program of water and sewer line extensions on the Island area, which provide water and sewer service to existing homes outside the City limits (enclaves). As these homes have individually annexed, each has paid a plant capacity fee and a line assessment covering the cost of the line extension project. Although there has not been a formal reservation of capacity for this area, the City has so far avoided allocating that capacity to new developments.

As future growth occurs and the total water demand increases, the City plans to increase the treatment capacity of its reverse osmosis water treatment plant by 0.225 MGD, for a total treatment capacity of 4.225 MGD. This minor expansion can be accomplished by adding membranes (permeators) to the existing skids. This expansion would be feasible only if the withdrawal rates in the existing SWFWMD Water Use Permit were increased to provide adequate supply for this increased treatment capacity.

ANALYSIS AND CONCERNS

The present permitted water production from the City's wellfields is less than the treatment capacity of the RO plant. Sound water supply planning generally dictates that the firm water supply capacity (i.e., assuming the largest well or pumping unit to be out of service), always be at least as great as the peak day demand during the planning period.

CONCERN
1.
Water production is limited by the current Water Use Permit restrictions imposed by SWFWMD on the City's raw water supply (wellfield withdrawals). Unless the permit restrictions are increased, this could limit the City's ability to fully utilize its existing treatment capacity.

Since operation of the City's RO treatment plant began, the RO concentrate has been disposed of by surface discharging to Hatchett Creek, a tidal waterway which flows to the Intracoastal Waterway and eventually to the Gulf of Mexico. Due to the results of recent toxicity testing, the Florida Department of Environmental Protection (FDEP) has proposed an Administrative Order for the City to develop a suitable alternative for concentrate disposal.

CONCERN
2.
The City does not have an alternative means of RO concentrate disposal.

The recovery rate of a membrane treatment system represents the ratio of the volume of finished, or product, water to that of the raw water fed to the treatment process. Due to the high sulfates associated with the Intermediate Aquifer System, the present RO plant is only recovering approximately 50 percent of the raw water pumped to the process, with the remainder being disposed of as concentrate. A grant has been awarded to the City by SWFWMD's Manasota Basin Board to allow the City to conduct pilot testing of membrane equipment in hopes of increasing recovery rates. It is possible that increasing the recovery rate could further reduce withdrawals from the intermediate aquifer.

CONCERN 3.

Only 50% of the raw water processed by the present RO plant is recovered.

The City continually monitors and maintains its water distribution system to minimize leakage from the system. The City's water distribution system was analyzed by the SWFWMD's planning department (leak detection section). According to SWFWMD, the City has a very "tight" system with very minimal leaks. (Carl P. Wright, SWFWMD, Oct. 1991). This would account for the City's low percentage of unaccounted water usage.

The existing and projected populations and potable water demands for the City of Venice are presented in **Table PW-3**. Although the population projections are slightly higher than those presented in the previous Comprehensive Plan, the historical average water demand has been lower than the previous LOS value. This reflects, in large part, the initial success of the 1993 Phase 1 Reuse Program toward reducing potable water demand for irrigation. This also reflects the updating of the per capita demand rates with the most recent population projections.

Several of the City's present ordinances and resolutions are based upon an adopted minimum LOS of 131 gpcd (gallons per capita per day), although a minimum LOS of 152 gpd/ERU as shown in **Table PW-3** above reflects the actual demands more closely. Furthermore, it is noted that the population projections indicate that buildout for the City of Venice is likely to occur sometime during the year 2019. Revisions related to these two factors should be considered for all applicable resolutions, ordinances and other legislation based upon the previous Comprehensive Plan. Such revisions will more accurately reflect the available growth potential within the utility service area without overstating the required potable water facilities for accommodating such growth.

CONCERN 4.

Present City ordinances and Resolution 793-83 are based on outdated potable water levels of service which were presented in the previous Comprehensive Plan.

The City's Water Master Plan identifies improvements to the water supply, treatment and distribution systems needed by the City at the time of adoption of the plan. Many of these improvements have been implemented since that time. The Water Master Plan needs to be updated periodically to reflect changes as well as to identify present water system needs.

CONCERN 5.

The City's Water Master Plan is out of date.

The proposed Southern Water Use Caution Area will limit the amount of water withdrawn from the Floridan Aquifer. However, it is anticipated that the proposed restrictions eventually will apply to the intermediate aquifer system, the city's present source of raw water supply. Therefore, the city must develop additional sources of water supply due to the possibility of future restrictions on its raw water supply.

CONCERN
6.
Current sources of raw water may be insufficient to meet future growth.

Wells are usually drilled through several aquifer zones, which have water of different qualities. The city and other well owners must be consistent in maintaining the integrity of well casings in order to prevent the migration of water between zones. Consistent well monitoring can serve to detect quality variations which could indicate such problems.

CONCERN
7.
Improperly maintained and operated wells could allow poor quality water to infiltrate into the aquifer.

Pumping from one aquifer zone can create a hydrostatic pressure differential that causes infiltration of water from zones of lower quality. The City and other well owners must control the pumping rate from their wells to avoid such infiltration. The City's wellfield monitoring program and wellfield management program have allowed the City to keep its pumping within acceptable limits.

CONCERN
8.
The over-pumping of water from the groundwater strata which are utilized by the City for potable water could result in the infiltration of poorer quality water.

In the past, wells were constructed without a clear understanding of the differences in water quality in different strata. As a result, some of these wells penetrated several such zones, allowing the exchange of water between them. Although SWFWMD has encouraged the location and plugging of old wells, the occasional discovery of previously unknown old wells is an indication that there may be other remaining such wells. The relatively poor water quality within the aquifers in the vicinity of Venice is another such indication.

CONCERN
9.
There has been only minimal success in plugging old artesian wells that can cause contamination of Venice's potable water supply.

GOALS, OBJECTIVES AND POLICIES

GOAL: TO MAINTAIN A POTABLE WATER SYSTEM TO MEET THE NEEDS OF BOTH PRESENT AND FUTURE RESIDENTS, AS WELL AS SEASONAL VISITORS, WHILE PROTECTING THE ENVIRONMENT.

Objective 1: Ensure an adequate supply of potable water capable of meeting Federal and State drinking water standards.

Policy 1-1: Continue to cooperate with Sarasota County, private utilities, the Peace River-Manasota Regional Water Supply Authority, and the Southwest Florida Water Management District in development of an interconnected regional system for the emergency supply of potable water.

Policy 1-2: Research and develop new raw water sources including wellfields, treated wastewater and treated seawater.

Policy 1-3: The Utilities Department shall continue the program of well monitoring.

Policy 1-4: Continue the wellfield monitoring program which includes periodically defining cone of influence for the fields.

Policy 1-5: Continue to monitor development within the cone of influence of wells to prevent the use of septic tanks in those areas.

Objective 2: Ensure that the potable water treatment plant, storage facilities and distribution system are adequate to meet the City's needs.

Policy 2-1: Continue to monitor and pilot test current engineering technology to maintain the most efficient water treatment system.

Policy 2-2: Update the present water master plan to reflect the projected water demands through 2015.

Policy 2-3: Continue to expand potable water supply, treatment and distribution facilities as needed to meet population growth and to provide a minimum LOS of 152 gpd/ERU based on average annual flow and a minimum Peak LOS of 227 gpd/ERU based on the maximum day flow. The adopted LOS will be provided concurrently with development.

Policy 2-4: Continue to ensure that the water rates reflect current operation, maintenance, and debt service costs for treatment and distribution.

Policy 2-5: Continue to fund maintenance of the distribution system.

Policy 2-6: Continue to use the RO process for water treatment.

Objective 3: Ensure an adequate supply of potable water by implementing water conservation programs.

Policy 3-1: Continue implementation of the reuse master plan to provide reclaimed wastewater for irrigation purposes.

Policy 3-2: Continue to enforce the irrigation restrictions and the city approved Water Conservation Plan.

Policy 3-3: Continue to implement the water shortage contingency plan when a water shortage emergency is declared by the Southwest Florida Water Management District.

Policy 3-4: Continue public education programs on potable water conservation.

Policy 3-5: Continue current metering procedures for potable water use.

Policy 3-6: Continue the monitoring of lost water volumes through the monthly billing system.

Policy 3-7: Continue the water meter change-out program.

Policy 3-8: Continue the water calibration and repair of the water treatment plant and wellfield metering systems.

Policy 3-9: Review utility costs every year to ensure that water rates are adequate to cover treatment and distribution costs.

Policy 3-10: Continue to update the plumbing code to require water saving fixtures.

Policy 3-11: Continue to specify native vegetation where landscaping is required.

Policy 3-12: Develop a water rate plan that uses an ascending scale that promotes conservation of water use by offering a lesser charge to consumers that conserve water usage.

Objective 4: Ensure the quality of groundwater by conserving and preserving the natural groundwater aquifer.

Policy 4-1: Continue to prohibit the use of septic tanks in the City.

Policy 4-2: Continue to protect the aquifer by coordinating the plugging of old wells and artesian wells with SWFWMD.

Policy 4-3: Continue to cooperate with the Environmental Department of Sarasota County in maintaining a comprehensive water quality monitoring and analysis program.

Policy 4-4: Coordinate with the Manasota Basin Board/Southwest Florida Water Management

District, Sarasota County, and the United States Geological Survey to identify and protect the function of artesian aquifers for recharge areas.

Policy 4-5: Protect aquifer water quality by encouraging strict enforcement of hazardous waste laws and swift prosecutions of violators.

Policy 4-6: Continue to protect aquifer water quality by including the Utility Department in the review process for any development projects to consider the impact of proposed land use on groundwater quality and quantity.

ATTACHMENT 4:
PROPOSED
POTABLE WATER SUPPLY ELEMENT
GOALS, OBJECTIVES AND POLICIES

PROPOSED CHANGES AND ADDITIONS
GOALS, OBJECTIVES AND POLICIES

POTABLE WATER GOALS, OBJECTIVES AND POLICIES

GOAL: TO MAINTAIN A POTABLE WATER SYSTEM TO MEET THE NEEDS OF BOTH PRESENT AND FUTURE RESIDENTS, AS WELL AS SEASONAL VISITORS, WHILE PROTECTING THE ENVIRONMENT.

Objective 1: Ensure an adequate supply of potable water capable of meeting Federal and State drinking water standards.

Policy 1-1: Continue to cooperate with Sarasota County, private utilities, *the Peace River-Manasota Regional Water Supply Authority*, *other local and regional suppliers*, and the Southwest Florida Water Management District in development of an interconnected regional system for the emergency supply of potable water.

Policy 1-2: Research and develop new raw water sources including wellfields, treated wastewater and treated seawater.

Policy 1-3: The Utilities Department shall continue the program of well monitoring.

Policy 1-4: Continue the wellfield monitoring program which includes periodically defining cone of influence for the fields.

Policy 1-5: Continue to monitor development within the cone of influence of wells to prevent the use of septic tanks in those areas.

Objective 2: Ensure that the potable water treatment plant, storage facilities and distribution system are adequate to meet the City's needs.

Policy 2-1: Continue to monitor and pilot test current engineering technology to maintain the most efficient water treatment system.

Policy 2-2: Update the present water master plan to reflect the projected water demands through 20~~15.~~*20*.

Policy 2-3: Continue to expand potable water supply, treatment and distribution facilities as needed to meet population growth and to provide a minimum LOS of 152 gpd/ERU based on average annual flow and a minimum Peak LOS of 227 gpd/ERU based on the maximum day flow. The adopted LOS will be provided concurrently with development.

Policy 2-4: Continue to ensure that the water rates reflect current operation, maintenance, and debt service costs for treatment and distribution.

Policy 2-5: Continue to fund maintenance of the distribution system.

Policy 2-6: Continue to use the RO process for water treatment.

Objective 3: Ensure *efficient use and* an adequate supply of potable water by implementing water conservation programs.

Policy 3-1: Continue implementation of the reuse master plan to provide reclaimed wastewater for irrigation purposes.

Policy 3-2: Continue to enforce the irrigation restrictions and the city approved Water Conservation Plan.

Policy 3-3: Continue to implement the water shortage contingency plan when a water shortage emergency is declared by the Southwest Florida Water Management District.

Policy 3-4: Continue public education programs on potable water conservation.

Policy 3-5: Continue current metering procedures for potable water use.

Policy 3-6: Continue the monitoring of lost water volumes through the monthly billing system.

Policy 3-7: Continue the water meter change-out program.

Policy 3-8: Continue the water calibration and repair of the water treatment plant and wellfield metering systems.

Policy 3-9: Review utility costs every year to ensure that water rates are adequate to cover treatment and distribution costs.

Policy 3-10: Continue to ~~update~~ *enforce* the plumbing code to require water saving fixtures.

Policy 3-11: Continue to specify native vegetation where landscaping is required.

Policy 3-12: ~~Develop~~ *Continue to implement* a water rate plan that uses an ascending scale that promotes conservation of water use by offering a lesser charge to consumers that

conserve water usage.

Policy 3-13: The City will promote through the site and development plan review process requiring rain sensors on sprinkler systems.

Objective 4: Ensure the quality of groundwater by conserving and preserving the natural groundwater aquifer.

Policy 4-1: Continue to prohibit the use of septic tanks in the City.

Policy 4-2: Continue to protect the aquifer by coordinating the plugging of old wells and artesian wells with SWFWMD.

Policy 4-3: Continue to cooperate with ~~the Environmental Department of~~ Sarasota County in maintaining a comprehensive water quality monitoring and analysis program.

Policy 4-4: Coordinate with the Manasota Basin Board/Southwest Florida Water Management District, Sarasota County, and the United States Geological Survey to identify and protect the function of artesian aquifers for recharge areas.

Policy 4-5: Protect aquifer water quality by encouraging strict enforcement of hazardous waste laws and swift prosecutions of violators.

Policy 4-6: Continue to protect aquifer water quality by including the Utility Department in the review process for any development projects to consider the impact of proposed land use on groundwater quality and quantity.

Objective 5: The Utility Department will maintain a Water Supply Facilities 10 year Work

Policy 5-1: The Water Supply Facilities Work Plan will implement the potable water level of service standards as defined in Policy 2-3.

Policy 5-2: In addition to implementation of conservation measures, the City will evaluate the Plan.

Policy 5-3: The City will use the Water Supply Facilities Work Plan to prioritize and coordinate

Policy 5-4: The City will maintain a current five-year schedule of capital improvements for the

Objective 6: Water sources compatible with the adopted Regional Water Supply Plan will

Policy 6-1: The City will cooperate and coordinate with the SWFWMD, Peace River/Manasota regionally-appropriate water sources to meet future consumption demands.

Policy 6-2: The City will seek to conserve and appropriately manage existing permitted water and/or optimize water supply yield. These strategies and techniques may include, but are not limited to, reclaimed water use, regional system interconnections,

Policy 6-3: The City will coordinate with the SWFWMD in the preparation and update of the

Policy 6-4: The City will coordinate with all water providers in the region to investigate the